[0312] It is desirable to let the users rest the other fingers back onto the surface after typematic has initiated **804** and while typematic continues, but the user must do so without tapping. Decision diamond **805** causes typematic to be canceled and the typematic element deleted **778** if the user asynchronously taps another finger on the surface as if trying to hit another key. If this does not occur, decision diamond **782** will eventually cause deletion of the typematic element when its finger lifts off.

[0313] The typing recognition process described above thus allows the multi-touch surface to ergonomically emulate both the typing and hand resting capabilities of a standard mechanical keyboard. Crisp taps or impulsive presses on the surface generate key symbols as soon as the finger is released or decision diamond **792** verifies the impulse has peaked, ensuring prompt feedback to the user. Fingers intended to rest on the surface generate no keys as long as they are members of a synchronized finger press or release subset or are placed on the surface gently and remain there along with other fingers for a second or two. Once resting, fingers can be lifted and tapped or impulsively pressed on the surface to generate key symbols without having to lift other resting fingers. Typematic is initiated ether by impulsively pressing and maintaining distinguishable force on a key, or by holding a finger on a key while other fingers on the hand are lifted. Glancing motions of single fingers as they tap key regions are easily tolerated since most cursor manipulation must be initiated by synchronized slides of two or more fingers.

[0314] Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

**1**. A sensing device that is sensitive to changes in self-capacitance brought about by changes in proximity of a touch device to the sensing device, the sensing device comprising:

two electrical switching means connected together in series having a common node, an input node, and an output node;

a dielectric-covered sensing electrode connected to the common node between the two switching means;

a power supply providing an approximately constant voltage connected to the input node of the series-connected switching means;

an integrating capacitor to accumulate charge transferred during multiple consecutive switchings of the series connected switching means;

another switching means connected in parallel across the integrating capacitor to deplete its residual charge; and

a voltage-to-voltage translation device connected to the output node of the series-connected switching means which produces a voltage representative of the proximity of the touch device to the sensing device.

**2**. A sensing device that is sensitive to changes in self-capacitance brought about by changes in proximity of a touch device to the sensing device, the sensing device comprising:

two electrical switching means connected together in series having a common node, an input node, and an output node;

a dielectric-covered sensing electrode connected to the common node between the two switching means;

a power supply providing an approximately constant voltage connected to the input node of the series-connected switching means; and

an integrating current-to-voltage translation device connected to the output node of the series connected switching means, the current-to-voltage translation device producing a voltage representative of the proximity of the touch device to the sensing device.

**3**. A sensing device that is sensitive to changes in self-capacitance brought about by changes in proximity of a touch device to the sensing device, the sensing device comprising:

two electrical switching means connected together in series having a common node, an input node, and an output node;

a dielectric-covered sensing electrode connected to the common node between the two switching means; and

a power supply providing an approximately constant voltage connected to the input node of the series-connected switching means.

**4**. The sensing device of claim 1, wherein the electrical switching means comprise semiconductor transistors that are switched on and off by dedicated control circuitry.

**5**. The sensing device of claim 1, wherein the electrical switching means comprise polymer transistors that are switched on and off by dedicated control circuitry.

**6**. The sensing device of claim 1, wherein the electrical switching means comprise thin film transistors that are switched on and off by dedicated control circuitry.

**7**. A multi-touch surface apparatus for detecting a spatial arrangement of multiple touch devices on or near the surface of the multi-touch apparatus comprising:

one of a rigid or flexible surface;

a two-dimensional array of the sensing devices of claim 1 arranged on the surface with their output nodes connected together and sharing the same integrating capacitor, charge depletion switch, and voltage-to-voltage translation device;

control circuitry for sequentially enabling each of the sensor devices;

voltage measurement circuitry to convert sensor data to a digital code; and

circuitry for communicating the digital code to another electronic device.

**8**. A multi-touch surface apparatus for detecting a spatial arrangement of multiple touch devices on or near the surface of the multi-touch apparatus comprising:

one of a rigid or flexible surface;